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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,442	04/09/2004	Eric Bornstein	borne40606	1341

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EXAMINER

LEWIS, RALPH A

ART UNIT PAPER NUMBER

3732

DATE MAILED: 09/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/821,442	<b>Applicant(s)</b> ERIC BORNSTEIN	
	<b>Examiner</b> Ralph A. Lewis	<b>Art Unit</b> 3732	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                                       |                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                                      | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

### **Rejections based on Prior Art**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6 and 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levy (US 5,622,501) in view of Okamoto et al (US 4,979,900).

Levy discloses a process for treatment of a patient's root canal (column 4, lines 23-26) wherein an optical probe 8 is provided having a distal tip 24 for insertion into a root canal. The distal tip is tapered so that "laser radiation is spread out along an extended section of the region being treated" (column 4, lines 13-16) rather than being concentrated at the tip of the probe. The device may be used for transferring laser radiation to destroy bacteria (column 6, lines 35-57). Levy suggests a Nd:YAG laser which generally operates at an infrared wave length of 1064 nm for destroying the bacteria (column 6, lines 36-37).

Levy is somewhat vague on the device's use for destroying bacteria in root canals, whether the root canal is first prepared by the standard technique of mechanically cleaning/clearing of tissue from the root canal with a conventional endodontic file before the optical probe is inserted and then the use of a conventional apical seal when the root canal is filled. Okamoto et al for a similar light conducting probe used for destroying bacteria in a patient's root canal teaches that first it is

desirable to clean and prepare the root canal (column 1, lines 16-18, column 6, line 7) and then insert the probe into the prepared root canal where light is conducted at a sufficient energy to destroy the bacteria. To have first cleaned and prepared the root canal in the Levy method before inserting the optical probe to destroy the bacteria would have been obvious to one of ordinary skill in the art in view of the teaching by Okamoto et al.

In regard to the "apical seal" limitation of element "(g)" in claim 6, applicant readily admits that apical seals are used in the prior art for sealing the root canal once it has been cleaned and prepared (see paragraph's 0017 and 0018) of applicant's specification. Merely using a prior art apical seal to seal the root canal in the Levy/Okamoto et al method once it has been cleaned and prepared would have been obvious to one of ordinary skill in the art.

In regard to claims 9 and 10, constructing the Levy probe of a size that fits within a prepared root canal would have been obvious to the ordinarily skilled artisan as a matter of routine.

In response to the present rejection, applicant argues that the Levy tip is tapered for providing laser radiation energy over the length of the tapered region, but that applicant does not rely on tapering per se, but on an "optically diffusive surface. It is unclear to the examiner why the tapered surface of the Levy probe that diffuses light laterally along the length does not meet the "diffuse surface" limitation. In fact applicant's own specification (first sentence of paragraph [0082]) suggests that a tapered surface meets the limitation. If applicant is intending for the claims to be limited

to a textured or frosted surface, then it is suggested that these limitations be placed in the claim. (However, applicant's attention is directed to Daikuzomo 5,174,297 column 3, lines 54-55 showing that such texturing to provide for more efficient light scattering is prior art.)

Applicant further takes issue with the Levy disclosure regarding the use of a stain to enhance the light energy delivery to the treated bacteria and argues that no such staining is required in applicant's invention. It is noted that the Levy wavelength falls well within the range claimed and disclosed by applicant. The Levy wavelength is just as effective as applicant's.

Claims 1-5, 7 and 12-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levy (US 5,622,501) in view of Okamoto et al (US 4,979,900) as applied above and in further view of Kataoka et al (US 5,374,266), Nakajima et al (US 5,300,067) and Rizioiu et al (US 5,741,247).

In regard to the limitation that the optical probe be composed of the class consisting of sapphire and zirconium, Levy doesn't appear to disclose the material of the fiber optic probe when used with a Nd:YAG laser for destroying bacteria. Kataoka et al, however, teach that sapphire fibers may be used for conducting laser light in a medical laser (column 2, line 36); Nakajima et al teach that sapphire fibers may be used for conducting laser light in a medical laser device and Rizioiu et al teach that zirconium and sapphire fibers are advantageously used for conducting laser light in a medical laser. Merely, selecting conventional prior art sapphire or zirconium optical fibers for the

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optical fiber probe of Levy would have been obvious to one of ordinary skill in the art as an obvious selection of well known prior art material commonly used for such a purpose.

### **Prior Art**

Applicant's information disclosure statement of August 25, 2006 has been considered and an initialed copy enclosed herewith.

### **Action Made Final**

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

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For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication should be directed to **Ralph Lewis** at telephone number **(571) 272-4712**. Fax (571) 273-8300. The examiner works a compressed work schedule and is unavailable every other Friday. The examiner's supervisor, Kevin Shaver, can be reached at (571) 272-4720.

R.Lewis  
September 17, 2006



Ralph A. Lewis  
Primary Examiner  
Au3732